

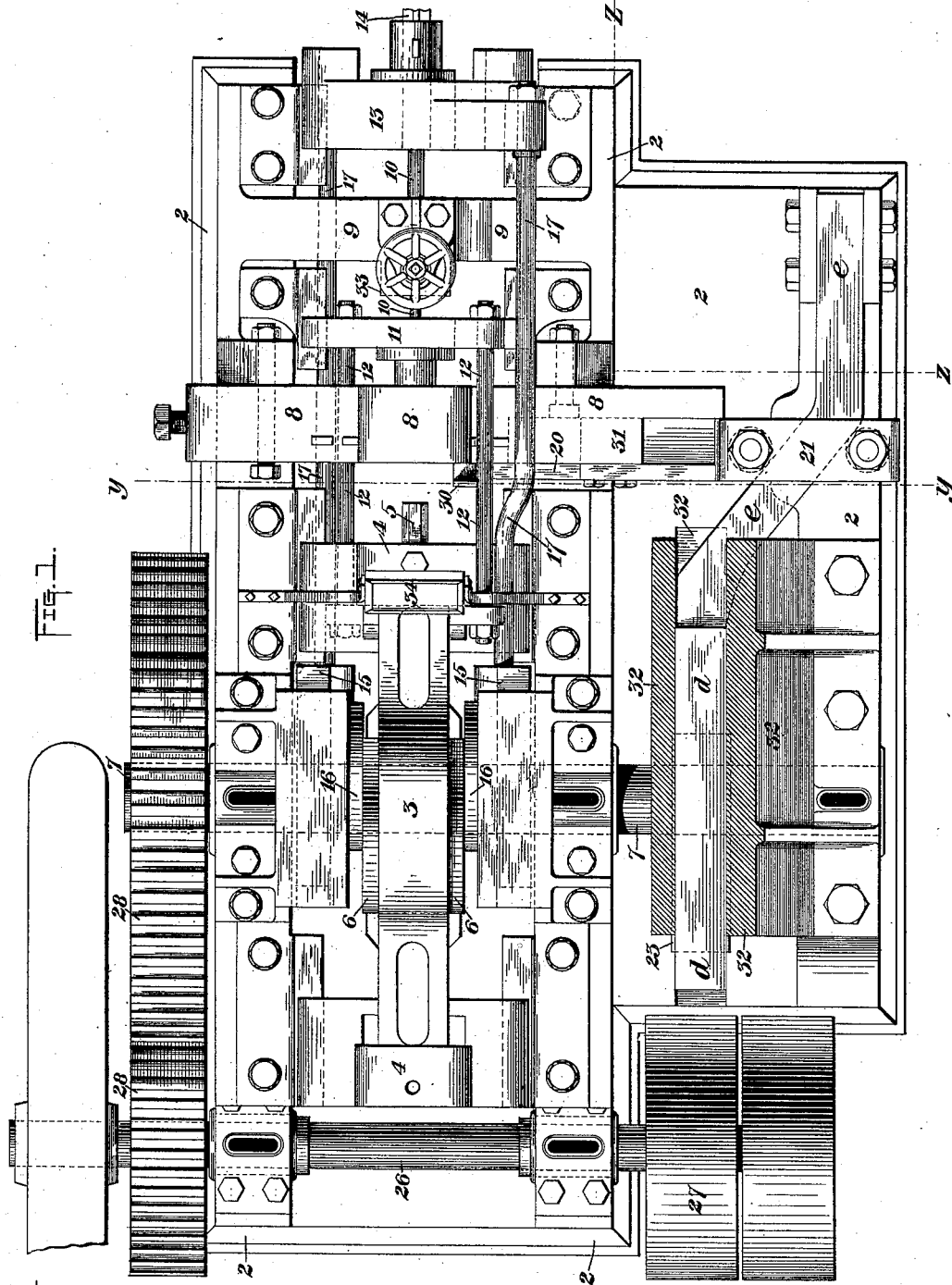
(No Model.)

4 Sheets—Sheet 1.

F. BRÜSER.
NUT MAKING MACHINE.

No. 381,872.

Patented Apr. 24, 1888.



Witnesses
H. L. Gill.
M. D. Corwin.

Inventor
Frank Brüser
by B. A. Kendall & Son
his Attorneys

(No Model.)

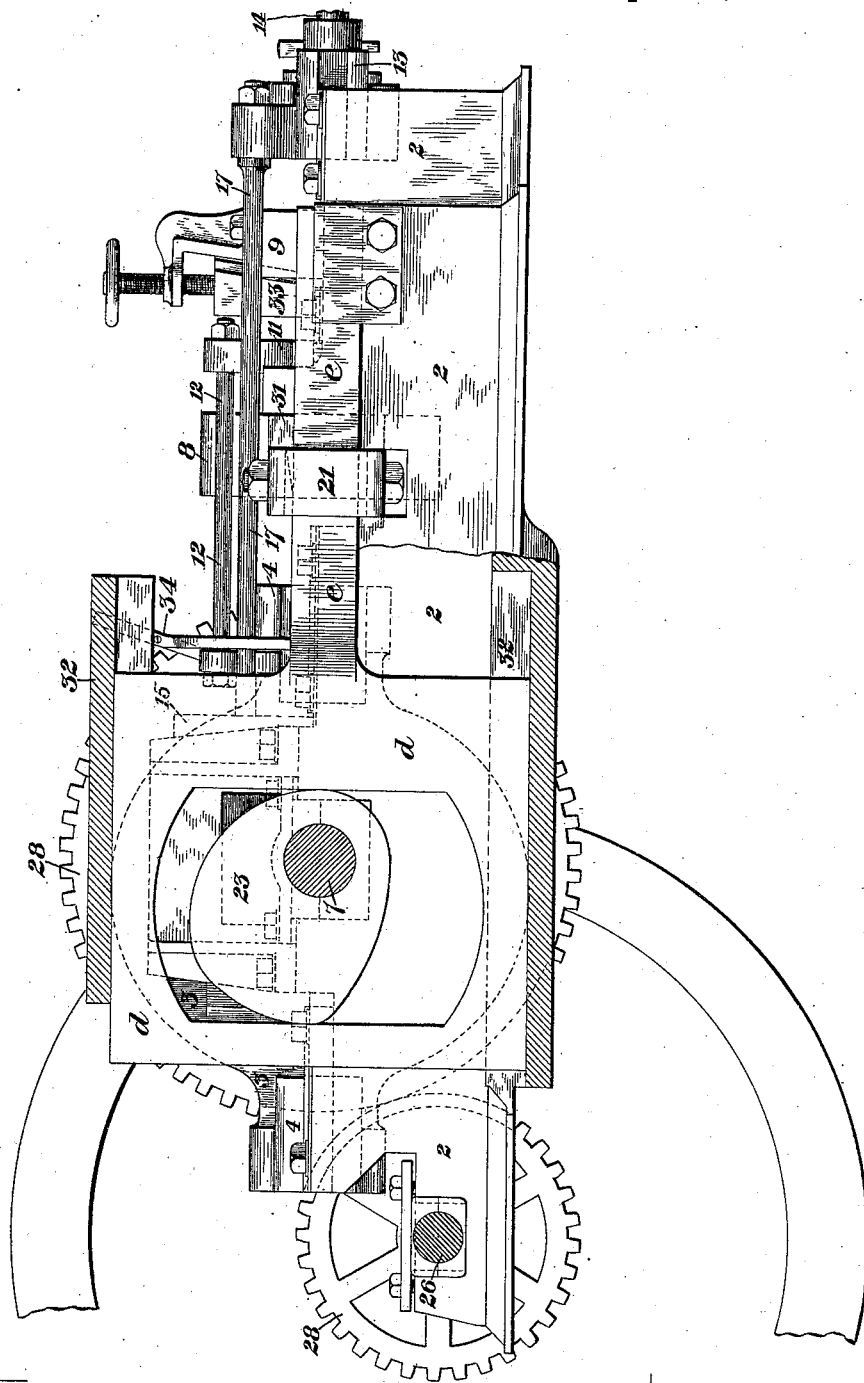
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FIG. 2—



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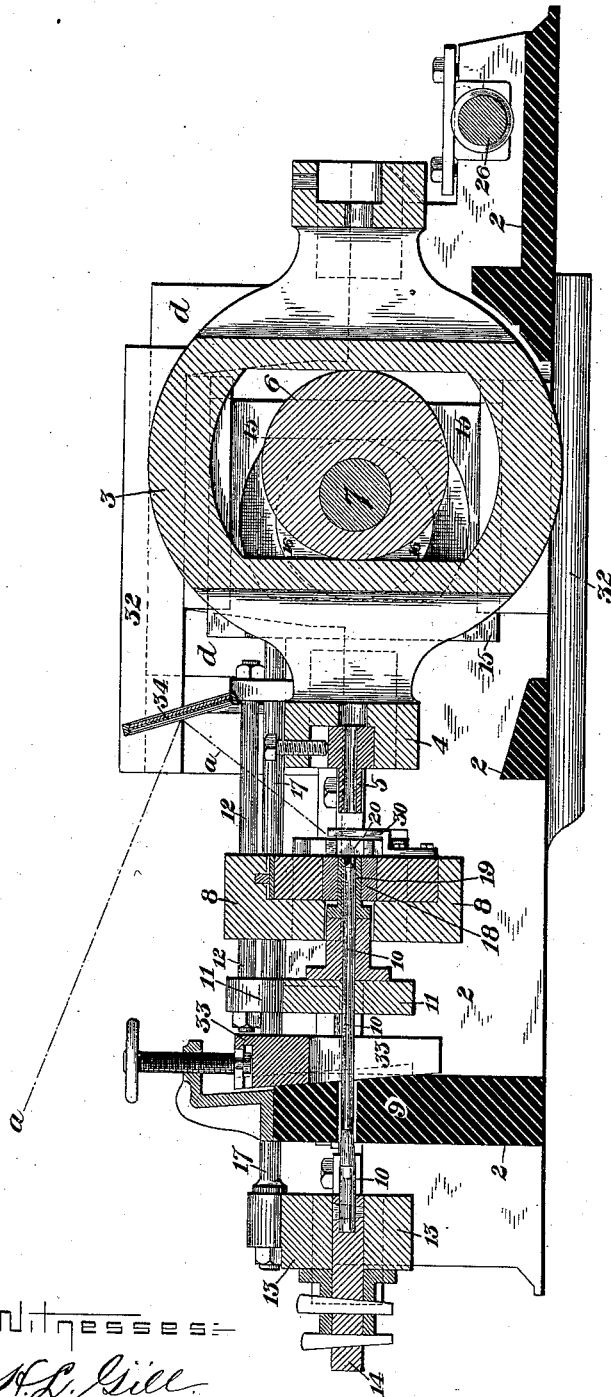
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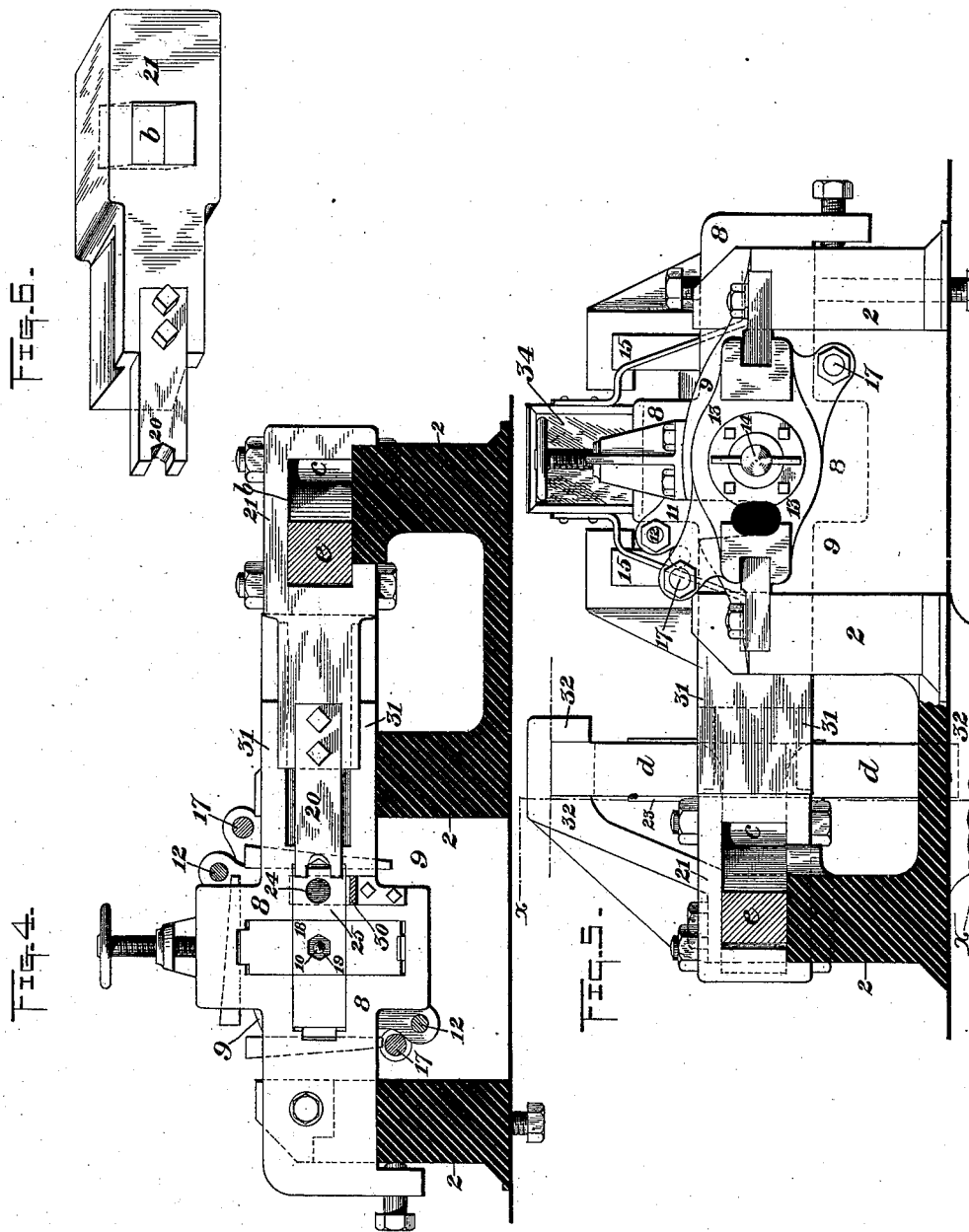
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NUT MAKING MACHINE.

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UNITED STATES PATENT OFFICE.

FRANK BRÜSER, OF PITTSBURG, PENNSYLVANIA, ASSIGNOR OF ONE-HALF
TO WILLIAM CHARLES, OF SAME PLACE.

NUT-MAKING MACHINE.

SPECIFICATION forming part of Letters Patent No. 381,872, dated April 24, 1888.

Application filed March 17, 1887. Serial No. 231,264. (No model.)

To all whom it may concern:

Be it known that I, FRANK BRÜSER, of the city of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Nut-Machines; and I do hereby declare the following to be a full, clear, and exact description thereof.

My invention relates to an improvement in the construction of machines for making nuts; and it consists in an improved arrangement of the mechanism which operates the cutter, whereby the motion of the latter is made easier and danger of breakage is greatly lessened.

In the accompanying drawings, which illustrate my invention, Figure 1 is a plan view partly in section. Fig. 2 is a side elevation of the machine, shown partly in section, on the line *x x* of Fig. 5. Fig. 3 is a vertical longitudinal central section of the machine. Fig. 4 is a vertical cross section on the line *y y* of Fig. 1. Fig. 5 is a rear view of the machine, partly in section, on the line *z z* of Fig. 1. Fig. 6 is a perspective view of the cutter and its head.

Like symbols of reference indicate like parts in each.

In the drawings, 2 represents the frame of the machine.

3 is a cam-yoke provided with a T-head, 4, in which is secured the male die 5. The cam-yoke 3 is usually provided with two T-heads, so that if from wear or other causes it is desirable the yoke may be reversed. The T-heads move in guides on the main frame 2, and the yoke is operated by a cam, 6, on the main shaft 7.

8 is the cross-bar which supports the die-box and is rigidly secured to the main frame, as is also the cross head 9, which supports the punch-rod 10.

11 is the press-plate, movable in guides on the frame 2 and operated from the cross-head 3 by stretchers 12. The connection between the stretchers 12 and the head 3 is loose, so that the die-head may move toward the die-box without of itself moving the press-plate; but on its back-stroke it will draw the plate with it.

13 is the punch-head, in which is secured the punch-mandrel 14, that carries the punch 10. This head is operated by stretchers 17

from yokes 15 on eccentrics 16 on the shaft 7. The eccentrics 6 and 16 are set relatively to each other so that they shall simultaneously reciprocate in opposite directions.

18 is the die, which is set in the die-box in the usual way. Within the die is the hollow presser 19, within which is the punch-mandrel 10.

20 is the knife which severs the nut-blanks. It is mounted in suitable slides, 31, and at its outer end has a head, 21, which is provided with an inclined slot, *b*, at the ends of which slot are friction-rollers *c*. (See Figs. 4 and 5.)

23 is an eccentric at the end of the shaft 7. It works within a yoke, *d*, from the end of which a bar or plunger, *e*, extends at an angle through the slot *b*. (See Fig. 1.) As the yoke *d* reciprocates in its bearings 32, the action of the angled bar *e* on the head 21 reciprocates the knife toward and away from the dies across the path of the rod 24, which is fed to the machine through a die, 25, Fig. 4. This motion of the cutter is regular, and by reason of its simplicity and steadiness is an important feature of the machine. The use of this bar *e* as a means for transmitting motion from the cam-yoked *d* to the cutter-head is especially advantageous, because it obviates the necessity for a rigid connection between those parts, and thus makes possible the adjustment of one without necessitating the adjustment of the other to keep them in alignment.

If desired, the rollers *c* may be omitted, as in Fig. 6; but they are useful in preventing friction between the parts.

26 is the power-shaft of the machine. It is driven by belt-connections 27 and transmits power by cogs 28 to the main shaft 7.

The operation of the machine is as follows: The workman stands at the rear of the machine and feeds the heated bar through a longitudinal passage or hole which extends up to the plane of the dies, but to one side thereof, Figs. 4 and 5. 30 indicates a stop which determines the amount of projection of the bar necessary to produce a nut-blank. After the bar is fed, the reciprocation of the knife 20 cuts off a piece from the projecting end of the bar and carries it over to a position directly between the die 5 and the die 18. Then, before the knife begins to withdraw, the die 5

advances and forces the severed nut-blank into the die-box 18 against the presser-mandrel 19, which it pushes back until the rear end of the presser-plate engages the stop 33. These independent motions of the die-head and presser-plate are caused by the loose connection between the stretcher 12 and the die-head 4. When the presser-plate stops, the further advance of the die compresses and shapes the nut-blank into the proper form. Simultaneously with the advance of the die-head the punch-mandrel 10 advances, punches a hole through the nut blank, and enters a hollow channel in the die 5. When the die-head begins its back-stroke, the presser 19 follows it and ejects the pressed nut from the die, and the punch-mandrel is withdrawn by the opposite movement of its head 13.

It will be noticed that the cutting and feeding of the nut-blank to the dies are done altogether by the moving knife 20, which severs the blanks and carries them into position. The exact limits of motion of the knife may easily be determined by adjusting it. There is no stop in the path of the knife, and if the return-stroke of the presser 19 should at any time fail to entirely eject the pressed nut the next stroke of the knife will dislodge it.

I claim—

1. In a nut-machine, the combination, with the dies, of a knife moving transversely thereto and arranged to cut blanks from a rod which is fed transversely to the line of motion of the knife, the knife-head, the power-shaft 7, and a reciprocating inclined bar or wedge, *e*, driven by the shaft 7, moving transversely to the knife-head and bearing thereon, substantially as and for the purposes described.

2. In a nut-machine, the combination, with the dies, of a knife moving transversely thereto and arranged to cut blanks from a rod which is fed transversely to the line of motion of the knife, the knife-head, the power-shaft 7, and a reciprocating inclined bar or wedge, *e*, driven by the shaft 7, moving transversely to the knife-head and working in a slot in the knife-head, substantially as and for the purposes described.

In testimony whereof I have hereunto set my hand this 29th day of January, A. D. 1887.

FRANK BRÜSER.

Witnesses:

T. W. BAKEWELL,
J. K. SMITH.