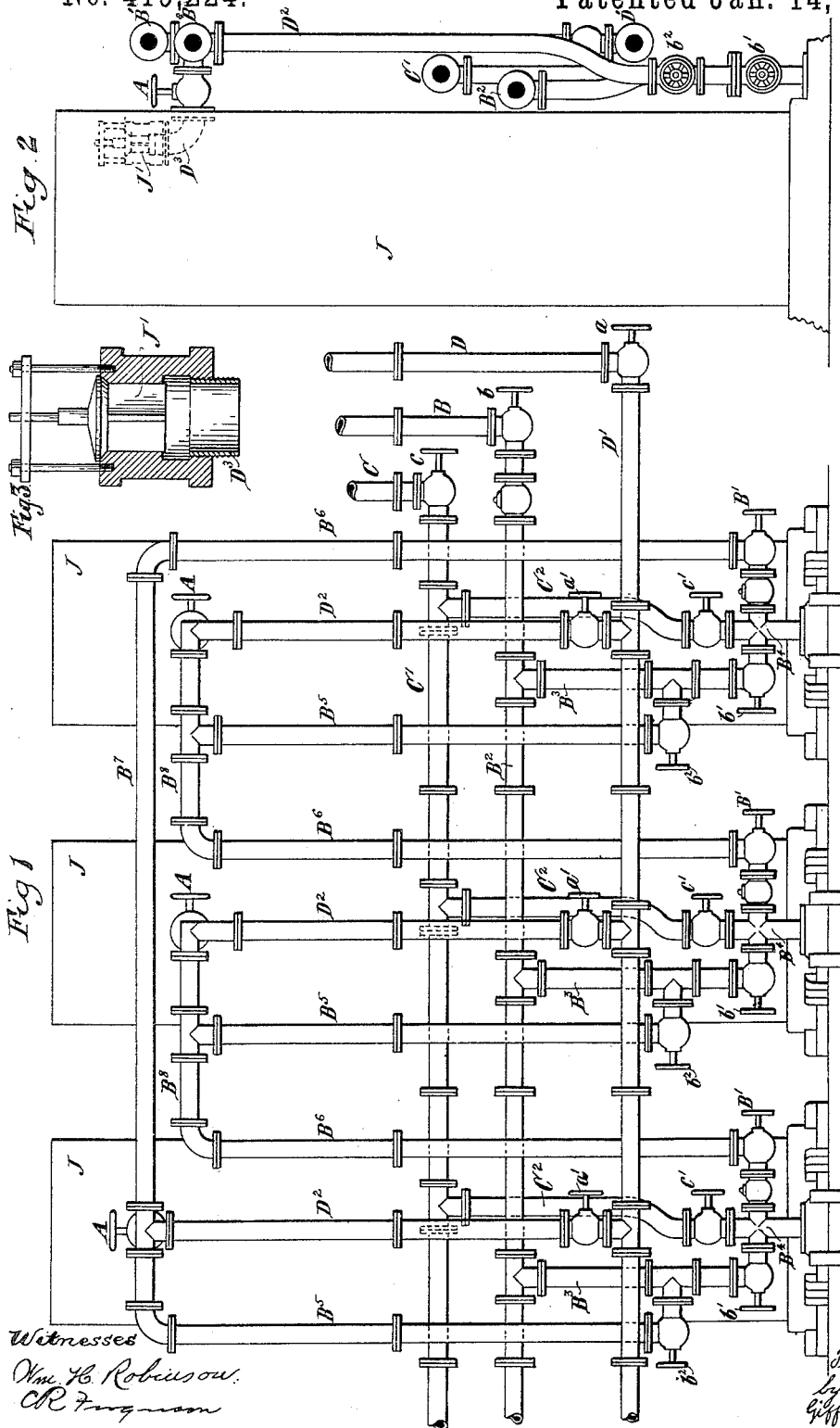


(No Model.)

T. SCULLY.
EXTRACTING APPARATUS.

No. 419,224.

Patented Jan. 14, 1890



Witnesses

Wm. H. Robinson.
C. R. Ferguson

Inventor
Thomas Scully
by his attorneys
Gifford & Brown

UNITED STATES PATENT OFFICE.

THOMAS SCULLY, OF LONG ISLAND CITY, NEW YORK, ASSIGNOR TO FRANCIS J. OAKES, OF SAME PLACE.

EXTRACTING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 419,224, dated January 14, 1890.

Application filed March 18, 1889. Serial No. 303,663. (No model.)

To all whom it may concern:

Be it known that I, THOMAS SCULLY, of Long Island City, in the county of Queens and State of New York, have invented a certain new and useful Improvement in Extractors for Dye-Stuff, of which the following is a specification.

I will describe in detail a series of extractors, each embodying my improvement, and then point out the novel features in claim.

In the accompanying drawings, Figure 1 is a side elevation of a series of extractors embodying my improvement. Fig. 2 is a side view, looking from the left of Fig. 1. Fig. 3 is a sectional view of a detail.

Similar letters of reference designate corresponding parts in all the figures.

I will first describe briefly such portions of the apparatus as are old. J designates the extractors proper. They are made of metal and are preferably circular. Each is provided with a false bottom, (not shown in the drawings,) which is perforated. Each is charged at the top with the chips from which the dye is to be extracted, the chips resting upon the perforated false bottom. After the dye has been extracted from the chips and drawn off the bottom of each extractor, together with the false bottom, may be removed to allow the spent chips to be taken out at the lower end of the extractor.

Although I have shown but three of the extractors, any desired number of them may be connected up in series.

The extractors or any one or desired number of them having been properly charged, water is introduced. Preferably this water will be heated previous to its introduction. Water is supplied from any suitable source through a main supply-pipe D, having a branch pipe D' connected thereto and extending horizontally in front of the extractors. At the joint between the pipes D D' is a cock a. Extending upwardly from the pipe D' are branch pipes D². These pipes communicate by means of branch pipes D³ with the interior of the extractors, near the upper ends of the latter. In the pipes D² are cocks a'. In the pipes D³ are cocks A.

B designates a main steam-pipe receiving steam from any suitable source. A branch

pipe B² extends from the pipe B horizontally in front of the extractors. At the joint between the pipes B B² is a cock b. Extending downwardly from the pipe B² are other pipes B³, having in them cocks b'. The pipes B³ communicate with cross-couplings B⁴. One of branches of the cross-couplings B⁴ extends downwardly and enters the extractors at their lower ends. B³ designates pipes extending upwardly and connected to the pipes B³. In the pipes B³ are arranged cocks b². Connected with other branches of the cross-couplings B⁴ are upwardly-extending pipes B⁶. The outside pipes B⁶ of the system communicate with each other by means of a horizontally-extending pipe B⁷. The intermediate pipes B⁶ of the system communicate by means of horizontally-extending pipes B⁸ with the branch pipes D³ and thus with the interiors of the extractors. The pipes B⁸ communicate at one of their ends with the pipes B⁸.

C designates a discharge-pipe for the extracted dye. It communicates with a pipe C', extending horizontally in front of the extractors. At the joint between the pipes C C' is a cock c. Extending downwardly from the pipe C' are branch pipes C², which communicate with other of the branches of the cross-couplings B⁴. In the pipe C² are cocks c'.

It will be readily understood that water may be supplied to any of the extractors independently by closing the cocks a' in the pipes D² leading to the others.

Steam is employed for the purpose of heat and pressure. When used for the former purpose, the cocks b², c', and B' are closed and the cocks b' opened. Steam then passes directly into the extractors at their lower ends and thence up through the mass within. When used for pressure for the purpose of forcing the contained liquor out of the extractors and into the discharge-pipe, the cocks b² c' are opened and the cocks b' B' closed. Steam then flows through the pipes B⁵ and into the extractors near the tops of the latter, thus forcing the liquor out at the lower ends and up through the pipes C² into the discharge-pipe. By opening all the cocks b' b² B steam-pressure throughout the entire system may be equalized.

In the method for extracting dyes, just de-

scribed, the operation goes on continuously, or, in other words, the extractors are both charged and emptied successively. It is therefore quite apparent that in the proper operation of the system each of the extractors should be capable of being isolated from the others while being charged, heated, or emptied, and this may be accomplished by a proper adjustment of the cocks, as will be readily understood.

I will now proceed to a description of that portion of the apparatus which constitutes my invention. It will be observed that the pipes D³, of which I have illustrated one in dotted outline in Fig. 2, are bent so as to extend upwardly within the extractors. At the upwardly-extending ends of these pipes I place valve-seats and winged puppet-valves J', of which I have shown one more clearly in Fig. 3. Said valves are held in a vertical position by means of an upwardly-extending guide-stem passing through an opening in a frame-work extended from each valve-seat. By the use of these valves all reflow of the liquid and chips from within the extractors into the pipes D², B⁵, B⁶, or B⁷, owing to ebullition within the extractors or other cause, is positively and automatically prevented. Heretofore in order to prevent such reflow it has been necessary to manipulate the valves A when the extractors were being charged with water and again

when such charge has been completed, and also when steam-pressure was being applied and when it was discontinued. These valves A, being high up and out of ordinary reach, have therefore caused much waste of time in their manipulation. They were also being constantly fouled by chips from the extractors, rendering their operation difficult and necessitating frequent cleaning and repairs, all of which is avoided by the use of my improvement. By my improvement, also, the continuous operation of the system is materially facilitated.

What I claim as my invention, and desire to secure by Letters Patent, is—

The combination, with an extractor constructed to be charged from the top and a water and steam supply pipe, of the branch pipe extending into the extractor and bent upwardly, a valve-seat thereon having a frame extending therefrom, provided with an opening, and a winged valve in said seat, provided with a guide-stem extending through the opening in the frame, the said valve having no connection with the top of the extractor, substantially as specified.

THOMAS SCULLY.

Witnesses:

C. R. FERGUSON,
WM. H. ROBINSON.